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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,632	12/14/2001	Jonathan F. Hester	56754US002	6407
32692	7590	03/22/2005	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			VO, HAI	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	
			1771	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/017,632	Applicant(s) HESTER ET AL.	
	Examiner Hai Vo	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28,32,34-39,41-54,56 and 57 is/are pending in the application.
- 4a) Of the above claim(s) 37 and 43-53 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36 is/are allowed.
- 6) ☐ Claim(s) 29,32,34,35,38,39,41,42, 54, 56 and 57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1012</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1771

1. The claim objections are withdrawn in view of the present amendment.
2. The art rejections over WO 200044472 taken alone are withdrawn in view of the present amendment. WO'472 does not teach the filter media comprising a microporous membrane.
3. The art rejections over WO 200044472 in view of Jensvold et al (US 6,153,097) are maintained.
4. Claim 36 is allowed.
5. The indicated allowability of claims 32, 39 and 54 is withdrawn in view of WO 99/65593 and WO 200044472. Rejections based on the reference follow.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 54 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 200044472. US 6,280,824 to Insley et al is relied on as an equivalent form of WO 200044472.

Insley '824 discloses a filtration media array formed of stacked contoured structure film layers to form a mechanically stable porous structure (column 5, lines 18-23). Insley '824 discloses the contoured structured film made from a polypropylene (column 6, lines 64-67). Three adjacent contoured structure layers of Insley '824 correspond to Applicants' microbial support layer, gas permeable, water impermeable layer and gas delivery layer. Insley '824 discloses the contour structured layer being treated with corona discharge to impart the positive charges on the structured layer (column 6, line 10). Insley '824 does not disclose the structured layer being exposed to reactive species in an ion sheath generated in a reaction chamber having a grounded electrode and an RF electrode. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the filtration array media of Insley '824 is identical to or only slightly different than the claimed elastic belt prepared by the method of the claim, because both articles are structurally the same. The filtration media array is formed of stacked contoured structure film layers to form a mechanically stable porous structure. The contoured structured film is made from a polypropylene that renders it gas permeable, and water impermeable. Three adjacent contoured structure layers of Insley '824 correspond to Applicants' microbial support layer; gas permeable, water impermeable layer and gas delivery layer. Insley '824 discloses the contour structured layer being treated with corona discharge to impart the positive charges on the structured layer. It is noted that if the applicant intends to

rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Insley '824. Accordingly, it is the examiner's position that Insley '824 anticipates or strongly suggests the claimed subject matter.

9. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 200044472 further in view of Rolando et al (US 5,078,925). Insley '824 discloses a filtration media array formed of stacked contoured structure film layers to form a mechanically stable porous structure (column 5, lines 18-23). Insley '824 discloses the contoured structured film made from a polypropylene (column 6, lines 64-67). Three adjacent contoured structure layers of Insley '824 correspond to Applicants' microbial support layer; gas permeable, water impermeable layer and gas delivery layer. Insley '824 does not teach the structured film layer having a surface coated with an ionizing radiation graft-polymerizable monomer. However, Insley '824 discloses the contour structured layer having a surface modification as disclosed in US patent 5,078,925 (column 7, lines 12-17). Rolando teaches the polypropylene article having a surface coated with an ionizing radiation graft-polymerizable monomer (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the surface of the structured film layer treated with an ionizing radiation graft-polymerizable monomer because such a

surface modification is known in the art and Rolando provides necessary details to practice the invention of Insley '824.

10. Claims 29, 34, 35, 38, 41, 42, 56, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 200044472 in view of Jensvold et al (US 6,153,097) substantially as set forth in the 09/23/2004 Office Action. Insley '824 discloses a filtration media array formed of stacked contoured structure film layers to form a mechanically stable porous structure (column 5, lines 18-23). Insley '824 discloses the contoured structured film being bonded to a planar structured cap layer which is made from a polyethylene (column 8, lines 27-29, column 6, lines 64-67, figure 5). The planar structured cap layer reads on Applicants' gas permeable polymeric coating. Two adjacent contoured structure layers of Insley 824 correspond to Applicants' gas permeable, water impermeable layer and Applicants' gas delivery layer. Figure 10 of Insley '824 shows that the filtration medium array is wound into a helix. Insley '824 discloses the structured layer having a surface that is of corrugated in shape (column 3, lines 60-61). Insley '824 teaches the structure film layer containing fluorochemical additives (column 6, lines 35-37). Insley '824 teaches the filtration media array including a filter layer of non-woven fibrous material over the face surface (column 8, lines 40-45). Likewise, the filter layer is located on the cap layer opposite to the contoured film layer. Insley's filter layer corresponds to the claimed microbial support layer. The filter layer is loaded with fillers such as activated carbon for removing organic molecules or deodorization (column 6, lines 50-51). The filter layer carries a net

positive surface charge (column 6, lines 10-15). Insley '824 does not teach the contour structured layer made from a microporous membrane, foam, woven or non-woven fabric. Jensvold teaches a gas separation membrane device comprising an array of hollow fiber membranes for gas delivery to provide a cost effective gas separation membrane device with a significant improvement in selectivity with a commercially acceptable loss of productivity (abstract, column 2, lines 1-4, figure 3). Jensvold teaches that the membrane being microporous (column 8, lines 8-9). Jensvold teaches that the materials used for permeate flow channels can be an open cellofoam (column 10, lines 16-18). It appears that Jensvold uses the same materials to form the microporous membrane as Applicants. Therefore, it is not seen that the microporous membrane of Insley as modified by Jensvold would have performed differently than Applicants' microporous membrane in terms of the gas permeability and water impermeability. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the microporous membrane or the open cellofoam for the contoured structure layer for cost effectiveness and high separation efficiency.

11. The art rejections have been maintained for the following reasons. Applicants argue that Insley' 824 does not disclose or suggest a gas permeable water impermeable layer comprising a microporous layer coated with a gas permeable

polymeric coating. The examiner disagrees. Insley'824 discloses a filtration media array formed of stacked contoured structure film layers to form a mechanically stable porous structure (column 5, lines 18-23). Insley '824 discloses the contoured structured film being bonded to a planar structured cap layer which is made from a polyethylene (column 8, lines 27-29, column 6, lines 64-67, figure 5). The planar structured cap layer reads on Applicants' gas permeable polymeric coating. Two adjacent contoured structure film layers of Insley '824 correspond to Applicants' gas permeable, water impermeable layer and Applicants' gas delivery layer. The combination of teachings of Insley '284 and Jensvold arrives at the layered sheet construction as recited in the claims (gas permeable polymeric coating/microporous membrane/gas delivery layer). Applicants argue that in air cleaners, air travels straight through the filter medium. Therefore, there is no suggestion in Insley '284 that the channels are used for purposes of delivering gas through a gas permeable, water impermeable layer in order to support bacterial growth on that layer. The arguments are not found persuasive for patentability. It is reminded that product claims must be structurally distinguishable from the prior art. While features of a product may be recited either structurally or functionally, claims directed to a product must be distinguished from the prior art in terms of structure rather than function. Insley '824 discloses the filtration media array comprising a structured layer comprising a base having a side on which there are a plurality of walls forming a plurality of separate flow channels. Applicants' gas delivery layer does not differentiate the

structured layer of Insley for air traveling satisfying the claimed structural limitations. Applicants argue that none of the cited references discloses a gas delivery layer that comprises foam, woven or non-woven fabric. It is not true. Jensvold teaches that the materials used for permeate flow channels can be an open cellofoam (column 10, lines 16-18). Applicants further argue there is no reason to combine Jensvold with Insley '824 since the Insley '824 reference is related to an air filter while Jensvold invention is directed to a gas separating membrane. There is no reason to expect that a microporous membrane taught for use in Jensvold's gas separation device would function in Insley's air filter. The examiner disagrees. Both Insley and Jensvold inventions are related to purification apparatus or separation devices. Insley '824 teaches every element of the presently claimed subject matter except the contour structured layer being formed from a microporous membrane or foam. In view of teaching of Jensvold, one of skilled in the art would be motivated to replace the contoured structured layer with the microporous membrane or the foam of the Jensvold invention for the high separation efficiency, cost effectiveness, improved mechanical properties and higher resistance to temperature variations (Jensvold, column 1, lines 24-26 and column 2, lines 1-5). The examiner maintains that the motivation to combine the two cited references is strong and sufficient and therefore, the art rejections are sustained.

12. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 200044472 in view of Jensvold et al (US 6,153,097) and WO 99/65593. US

6.524,488 to Insley et al is relied on as an equivalent form of WO 99/65593.

Insley '824 discloses a filtration media array formed of stacked contoured structure film layers to form a mechanically stable porous structure (column 5, lines 18-23). Insley '924 discloses the contoured structured film being bonded to a planar structured cap layer which is made from a polyethylene (column 8, lines 27-29, column 6, lines 64-67, figure 5). The planar structured cap layer reads on Applicants' gas permeable polymeric coating. Two adjacent contoured structure layers correspond to Applicants' gas permeable, water impermeable layer and Applicants' gas delivery layer. Insley '824 does not teach the contour structured layer made from a microporous membrane. Jensvold teaches a gas separation membrane device comprising an array of hollow fiber membranes for gas delivery to provide a cost effective gas separation membrane device with a significant improvement in selectivity with a commercially acceptable loss of productivity (abstract, column 2, lines 1-4, figure 3). Jensvold teaches that the membrane being microporous (column 8, lines 8-9). It appears that Jensvold uses the same materials to form the microporous membrane as Applicants. Therefore, it is not seen that the microporous membrane of Insley '824 as modified by Jensvold would have performed differently than Applicants' microporous membrane in terms of the gas permeability and water impermeability. This is in line with In re Spada, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties. Therefore, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to use the microporous membrane for the contoured structure layer for cost effectiveness, high separation efficiency, improved mechanical properties and higher resistance to temperature variations (Jensvold, column 1, lines 24-26 and column 2, lines 1-5). Insley '824 does not teach the gas delivery layer having two sides each having a plurality of walls forming flow channels through which gas can be conveyed and giving gas permeable, water impermeable layers on both sides of the gas delivery layer. Insley'488 teaches a filtration medium having a flow channel layer having two sides each having a plurality of walls forming flow channels through which gas can be conveyed and giving gas permeable, water impermeable layers on both sides of the flow channel layer as shown in figure 11. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the flow channel layer having the structure as shown in the Insley '488 invention motivated by the desire to provide versatility and adaptability to meet any filtration requirement.

13. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 200044472 in view of Jensvold et al (US 6,153,097) and WO 99/65593 as applied to claim 32 above, further in view of Taniguchi et al (US 6,322,703). Neither WO'472 nor Jensvold discloses the pore size of the hollow fiber membrane. Taniguchi, however, teaches the hollow fiber membrane for use in separation devices comprising a pore size of 0.18 μm within the claimed range (example 2). Therefore, it would have been obvious to one having ordinary skill in

Art Unit: 1771

the art at the time the invention was made to use the hollow fiber membrane having a pore size within the claimed range motivated by the desire to achieve the desired filtration efficiency within the filtration array media.

Allowable Subject Matter

14. Claim 36 is allowed. Since the Insley invention is directed to an air filter, one of skill in the art would not be motivated to add a microbial population adjacent to the cap layer of the air filter because to do so would destroy the air filter for its intended utility.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

Art Unit: 1771

Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV

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